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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/883,186	06/19/2001	Takuma Tanimoto	HITA.0061	9916

38327 7590 04/06/2006

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EXAMINER

VU, HUNG K

ART UNIT	PAPER NUMBER
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2811

DATE MAILED: 04/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/883,186	TANIMOTO ET AL.	
	Examiner	Art Unit	
	Hung Vu	2811	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 January 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,5,7,9,12,16,19 and 20 is/are rejected.
- 7) ☒ Claim(s) 3,4,6,8,10,11,13-15,17 and 18 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>06/19/01</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Invention of Embodiment 1 of Figure 2(a), Claims 1-20, in the reply filed on 01/24/06 is acknowledged.

Claim Objections

2. Claims 1, 3, 12-15 and 19-20 are objected to because of the following informalities:
In claim 1, lines 1, 3, and 5, after "semiconductor", insert "--substrate--" for clarity.
In claim 3, line 3, after "semiconductor", insert "--substrate--" for clarity.
In claims 12-15, line 2, after "semiconductor", insert "--substrate--" for clarity.
In claims 19 and 20, lines 1, 3, and 4, after "semiconductor", insert "--substrate--" for clarity.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 20 is rejected under 35 U.S.C. 102(b) as being anticipated by Palmer et al. (PN 6,052,287).

Art Unit: 2811

Palmer et al. discloses, as shown in Figure 1, a sensor, comprising: a semiconductor substrate (12) having a front surface and a rear surface; and a high frequency sensor circuit including input/output signal lines (18) formed on the front surface of the semiconductor substrate, the input/output signal lines being routed through at least one signal-line via hole (24) to the rear surface of the semiconductor substrate, wherein at least one grounding via hole (24) is formed near the signal line via holes, wherein the signal-line via holes and the grounding via holes form microstrip lines.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 2, 5, 7, 9, 12, 16 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Palmer et al. (PN 6,052,287).

Regarding claims 1 and 19, Palmer et al. discloses the claimed invention including the sensor as explained in the rejection above. Palmer et al. further discloses that other devices can be formed. Palmer et al. does not disclose the device such as a radio frequency module and a transceiver. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to form the device of Palmer et al. also comprising the radio frequency module and the transceiver in order to form the integrated circuit with higher density to perform the multitasks.

Art Unit: 2811

Regarding claim 2, Palmer et al. discloses at least a second ground via hole is provided near the active device.

Regarding claims 5, 7 and 9, although Palmer et al. does not teach the length of signal via hole and ground via hole, the impedance of the microstrip lines, and the width of the via holes, as that claimed by Applicants, however, it would have been obvious to one having ordinary skill in the art at the time the invention was made to form the signal and ground via holes and the microstrip lines having a desired length, impedance, or width, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Regarding claim 12, Palmer et al. discloses the rear surface of the semiconductor substrate includes signal-line areas through which the signal line via holes extend and grounding areas through which the first and second grounding via holes extend, further wherein the rear surface is covered with metal (22) except in boundary zones between the signal-line areas and the grounding areas.

Regarding claim 16, Palmer et al. discloses the rear surface of the semiconductor substrate is covered with solder metal. Palmer et al. does not disclose the rear surface is further covered with a barrier metal lamination. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to form the device of Palmer et al. further covered with a

Art Unit: 2811

barrier metal lamination because the barrier metal lamination helps prevent the diffusion of the metal and short circuit.

Allowable Subject Matter

5. Claims 3, 4, 6, 8, 10, 11, 13-15, 17 and 18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. The following is an examiner's statement of reasons for allowance:

Applicant's claims 3, 4, 6, 8, 10, 11, 13-15, 17 and 18 are allowable over the references of record because none of these references disclose or can be combined to yield the claimed radio frequency module comprising the active device being a multi-finger electrode structure and further grounding electrodes of the multi-finger electrode structure being connected to the rear surface of the semiconductor substrate through at least the second grounding via hole, as recited in claims 3 and 4.

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hung Vu whose telephone number is (571) 272-1666. The examiner can normally be reached on Tuesday to Friday 6:00-4:30.

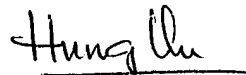
Art Unit: 2811

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie C. Lee can be reached on (571) 272 - 1732. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Vu

March 30, 2006

A handwritten signature in black ink, appearing to read "Hung Vu", written over a horizontal line.

Hung Vu

Primary Examiner